



NAVAL
POSTGRADUATE
SCHOOL

MS Mechanical Engineering

570 Curriculum





Academic Associate

- Professor Josh Gordis:
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- Duties:
 - Academic Advisor: Degree requirements, general (academic) advice.
- Prof. Healey:
 - Chairman: Final word.





Quarter	To Do
1	<ul style="list-style-type: none">•BSME/MSME.•Decide on your matrix (TSSE?).
2	
3	Start talking to faculty about your thesis.
4	Pick a thesis advisor, specialization area, and schedule your electives.
5	
6	<ul style="list-style-type: none">•Fill out the thesis approval form.•Start working on your thesis.
7	<ul style="list-style-type: none">•Thesis slots (maybe earlier).•Fill out final versions of BSME/MSME.
8	<ul style="list-style-type: none">•Final revisions of BSME/MSME forms.
After...	Keep in touch!





- ME is accredited at the MS level.
- Non-BSME students must completely fill out the BSME equivalency form.
- All students must fill out BSME and the MSME forms.
- Do it early, let me see it and file with Sandra.
- Revise them often.
- Final forms must be in your file prior to graduation.



- BSME/MSME forms are attached at the end of this file.
- First fill out MSME form. Use the minimum number of credits required in the form.
- Then proceed to the BSME form.
- In cases where BSME equivalency cannot be established, we can award MSES(ME) degree.





MSME Degree Requirements

- (Credit hours) = (lectures) + 0.5 (lab).
 - 16 credit hours of thesis (4 x ME0810).
 - 32 hours at 3xxx and 4xxx level.
 - Of these 32 hours, at least 12 must be at 4xxx.
 - Of these three 4xxx courses, at least two from a specialization track.
 - Of the 32 hours, at least 8 must be outside the department.





MSES(ME) Requirements

- Same as MSME.
- Not ABET accredited.





Specialization Tracks

- Three electives (4xxx); two must be from a specialization track.
- Available tracks:
 - Dynamic Systems and Control: Healey, Papoulias, Ross, Kaminer, Driels (Weaponeering).
 - Structural Mechanics: Shin, Gordis, Agrawal.
 - Fluid/Thermo: Millsaps, Gopinath, Kelleher, Hobson.
 - Materials Science: McNelley, Dutta.
 - Ship Systems: Papoulias.
- Decide early:
 - Electives are offered once a year.
 - Track is in support of thesis work.





P-Code Requirements

- P-code requirements, BSME equivalency, and course prerequisites must also be met.
- Most students (USN) will qualify for the 5601 P-code.
- Students who complete TSSE will qualify for the 5602 P-code.
- In cases where 5601 P-code is not satisfied, you will qualify for the 5600 P-code.





- It is not written in stone.
- Must always respect:
 - Degree requirements.
 - P-code requirements.
 - Course prerequisites.
 - BSME equivalency.
 - ✓ Linear algebra.
 - ✓ Statistics.
 - ✓ Design.
- Room for maneuvering.





- What is a thesis?
- What is a thesis advisor?
- Who can serve as a thesis advisor?
- When do I start the thesis?
- How long does the thesis require?
- How many thesis slots?
- Can I take additional thesis slots?
- Can I do a joint thesis?
- Can I combine thesis with courses?
- How do I select a thesis topic/advisor?
- Is there any funding required or received?
- Are there any resources available?





Typical Matrix

Q T R					
1	MA1115 (1,2,3,4) Multi-Variable Calculus (4-0) (MA113-4/EQ)	ME2101 (1,3) Thermodynamics (4-2) (MA1115)	ME2503 (1,3) Engineering Statics & Dynamics (5-0) (MA1115-C)	NW3230 (1,2,3,4) Maritime and Joint Strategic Planning (4-0) (-)	MA1116 (1,2,3,4) Vector Calculus (3-0) (MA113-4/EQ)
2	MA 2121 (1,2,3,4) Diff Eqns (4-0) (MA1115-6)	ME2601 (2,4) Mechanics of Solids I (4-1) (ME2503/MA115)	MS2201 (2,4) Materials Science (3-2) (-)	OS3104 (2) Probs & Stats for Engineers (4-0) (-)	MA2043 (1,2,3,4) Linear Algebra (4-0) (-)
3	MA3132 (1,2,3,4) Partial Differential Equations (4-0) (MA2121/MA1116)	MA3232 (1,2,3,4) Numerical Analysis (4-0) (MA2121/MA2043)	ME3611 (1,3) Mechanics of Solids II (4-0) (ME2601)	ME2201 (1,3) Fluid Mechanics I (3-2) (ME2503)	
4	EO2102 (2,4) Intro to Circuit & Power Systems Analysis (4-2) (-)	ME3521 (2,4) Mechanical Vibrations (3-2) (ME2503/ME2601/MA2139)	ME3201 (2,4) Applied Fluid Mechanics (4-1) (ME2101/ME2201/MA3132)	ME3150 (2,4) Heat Transfer (4-1) (ME2101/ME2201/MA3132-C)	
5	ME2801 (1,3) System Dynamics (3-2) (ME2503/MA2139)	MS3202 (1,3) Failure Analysis and Prevention (3-2) (MS2201)	ME3711 (1,3) Machine Design (4-1) (ME2601)	ME3450 (1,3) Computational Methods in Mech Engineering (3-2) (EC1010/MA3232/ME3150/ ME3201/ME3611)	
6	ME3801 (2,4) Automatic Controls (3-2) (ME2801)	ME3240 (2,4) Marine Power and Propulsion (4-2) (ME2101, ME2201)	ME3712 (2,4) Systems Design (4-2) (ME3711)	ME4999 Specialization Elective	
7	ME0810 Thesis	ME0810 Thesis	ME4999 Specialization Elective	MS3304 Corrosion (3) (3-2) (MS2201) - OR - MS3606 Welding (1) (3-2) (MS2201/MS3202)	
8	ME0810 Thesis	ME0810 Thesis	ME4999 Specialization Elective	TS3001 (2,4) Naval Architecture (3-2) (ME2201/ME2601)	



- Total Ship Systems Engineering.
 - For EDOs, URLs, and International.
- JPME
 - Mainly for URLs.
- Systems Engineering Certificate.
 - Mainly for EDOs.
 - SEC or TSSE.





What is TSSE?

- Option (specialization area).
- Focuses on Total warship design.
- Open to ME, ECE, Physics, SEA students.
- Not a separate degree but a P-code designation.
- Decide early if TSSE is for you.
- More info at www.nps.navy.mil/tsse/ or see me.





Typical TSSE Matrix

QTR					
Sp	ME2503 Statics and Dynamics	ME2101 Thermodynamics	MA2043 Linear Algebra	NW3230 Strategic Planning	
Su	MS2201 Materials Science	MA2121 Differential Equations	ME2601 Solids I	TS3001 Naval Architecture	
F	ME2201 Fluids I	ME2801 System Dynamics	MA3132 PDEs	TS3000 Electrical Power	MA3232 Numerical Analysis
W	ME3801 Automatic Controls	ME3201 Fluids II	TS3002 Ship Design	TS3003 Combat Systems I	
Sp	ME3611 Solids II	MS3202 Failure Analysis	TS4000 Combat Systems II	TS4001 Ship Systems Integration	MS3304 Corrosion
Su	ME3521 Mechanical Vibrations	ME3150 Heat Transfer	ME0810 Thesis	TS4002 TSSE Design Project	
F	ME3450 Computational Methods	ME3711 Machine Design	ME0810 Thesis	TS4003 TSSE Design Project	
W	ME4xxx Elective	OS3104 Probability	ME0810 Thesis	ME0810 Thesis	



- PYTHON – you will be using it.
- MATLAB
- Technical writing.
- Technical presentation skills.
- Maintain a 3.0 GPA.





- BSME equivalency form.
- MSME checklist.
- Course guide.
- Department catalog.
- Thesis proposal form.
- Theses guide.

